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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,896	04/27/2005	Jean-Francois Pfister	16824-6	9334

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EXAMINER	
ROST, ANDREW J	

ART UNIT	PAPER NUMBER
3753	

MAIL DATE	DELIVERY MODE
01/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,896	PFISTER ET AL.	
	Examiner	Art Unit	
	Andrew J. Rost	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 October 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 10/18/2007. Claims 1-6 have been previously cancelled. Presently, claims 7-12 are pending.

Drawings

2. The drawings were received on 10/18/2007. These drawings are acceptable.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bock (4,393,319) in view of Akkerman (5,195,721).

Regarding claim 7, Bock discloses an actuator having a motor portion (coils 46, 48) and an actuator device portion having a rotatable member (62) that is rotated by the motor portion and has threads (114) to cause a linear displacement of a bolt (220, threads of bolt are 115), an axially compressible spring (116) that is located between a head (22) and a casing (52) with the valve head contacting a valve seat (20) in a closed position and the bolt being reversible (as the rotor rotates, the bolt is caused to move in one direction and when the rotor is rotated in the opposite direction, the bolt is moved in a direction opposite the first direction and is therefore reversible). Bock does not

expressly disclose the valve closes under the condition of a power failure. However, Akkerman teaches a fail safe valve actuator that when power fails, a spring moves the valve stem in the other direction to move the valve member to a fail safe position (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the actuator of Bock with the fail safe arrangement as taught by Akkerman in order to allow the valve head to return to a fail safe position in the case of power failure. Regarding the limitation pertaining to "where tan(α) is greater than the friction coefficient μ between the threaded bolt and the rotatable member so that the threaded bolt is reversible", both Bock (as the rotor rotates, the bolt is caused to move in one direction and when the rotor is rotated in the opposite direction, the bolt is moved in a direction opposite the first direction and is therefore reversible) and Akkerman (the bolt is caused to rotate under fail safe conditions) disclose the rotatable member to be reversible. Furthermore, due to the wide range for the angle α, (the angle α for a coefficient of friction of 0.08, smallest coefficient of friction for typical screw threads, is about 4.6 degrees, while the angle α for a coefficient of friction of 0.25, largest coefficient of friction for typical screw threads, is about 14 degrees) it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the angle α of the threads to be greater than 4.6 degrees in order to provide for faster movement of the valve head, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

In regards to claim 9, Bock discloses placing a spring of a linear actuator between the valve head and around a portion of the casing in order to stabilize and secure the spring to the casing.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bock in view of Akkerman and further in view of Jones et al. (2,247,090).
Bock in view of Akkerman discloses a linear actuator having a motor, and actuator device portion, a rotatable member with a threaded portion and a spring located between the actuator casing and valve head. The modified Bock reference does not disclose the threaded bolt to include at least two threads. However, Jones et al. teach having screw threads at multiple pitch so that the valve head may be moved from a full open to a full closed position in less than a full turn of the screw (page 2, right hand column, lines 35-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the bolt of the modified Bock reference with screw threads at multiple pitch so that the valve head may be moved from a full open to a full closed position in less than a full turn of the bolt.

6. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bock in view of Akkerman and further in view of Hutchins (5,146,126).

In regards to claim 10, Bock in view of Akkerman discloses a linear actuator having a motor, and actuator device portion, a rotatable member with a threaded portion and a spring located between the actuator casing and valve head. The modified Bock

reference does not disclose a partition wall between the motor portion and the actuator portion. However, Hutchins teaches the use of an isolation tube placed between a stator and a rotor of an actuator in order to isolate hydraulic fluid from the motor portion (col. 2, lines 63-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place an isolation tube as taught by Hutchins between the motor portion and rotor portion of Kobashi et al. in order to isolate the motor portion from hydraulic fluid.

In regards to claims 11 and 12, the modified Bock reference discloses placing bearings, cover, rotatable member and a holding member for supporting the valve shaft in the isolation tube and being held by an interference fit.

Response to Arguments

7. Applicant's arguments filed 10/18/2007 have been fully considered but they are not persuasive.

In regards to applicant's arguments regarding the limitation, "at least one thread arranged at an angle α relative to a plane orthogonal to the axial direction of motion of the threaded bolt, where tan(α) is greater than the coefficient of friction μ between the threaded bolt and the rotatable member". Both Bock (as the rotor rotates, the bolt is caused to move in one direction and when the rotor is rotated in the opposite direction, the bolt is moved in a direction opposite the first direction and is therefore reversible) and Akkerman (the bolt is caused to rotate under fail safe conditions) disclose the rotatable member to be reversible. Furthermore, due to the wide range for the angle α,

(the angle α for a coefficient of friction of 0.08, smallest coefficient of friction for typical screw threads, is about 4.6 degrees, while the angle α for a coefficient of friction of 0.25, largest coefficient of friction for typical screw threads, is about 14 degrees) it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the angle α of the threads to be greater than 4.6 degrees, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

8. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

9. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the application of

a fail safe to the actuator of Bock would thereby close the air bypass around an intake valve plate and prevent the bypassing of the air around an intake valve plate in the event of a power failure to the electric motor powered actuator.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew J. Rost whose telephone number is 571-272-2711. The examiner can normally be reached on 7:00 - 4:30 M-Th and 7:00 - 12:00 Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Huson can be reached on 571-272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJR, AJR 7 JANUARY 2008

RAMESH KIRSHNAMURTHY
PRIMARY EXAMINER